CLAIMS

1 Apparatus for heat-treating products, comprising: a retort into which the products to be treated are receivable; heating means for heating the retort; coolant spray means for spraying a liquid coolant onto products received in the retort; and shielding means to substantially prevent coolant sprayed from the coolant spray means from impinging on the interior of the retort.

2 Apparatus as claimed in Claim 1 wherein the shielding means comprises one or more plates of solid metal or plastics sheet material.

3 Apparatus as claimed in Claim 1 wherein the shielding means comprises foam or mesh material having a pore or mesh size effective to prevent droplets or streams of coolant from impinging on the retort wall.

4 Apparatus as claimed in any preceding claim wherein the shielding means comprises an impervious layer of thermally insulating material.

5 Apparatus as claimed in any preceding claim wherein the shielding means includes a sump tray mounted at a lower region of the retort and having a drain conduit extending through the retort wall to drain liquid from the tray, and a plurality of vertically extending plates positioned with their lowermost edges above the sump tray

so that liquid impinging on the plates will be collected in the sump tray.

6 Apparatus as claimed in any preceding claim wherein the retort incorporates agitating means for applying a reciprocating motion to products received in the retort.

7 Apparatus as claimed in any preceding claim wherein the shielding means is fixed relative to the retort.

8 Apparatus as claimed in any preceding claim wherein the retort incorporates a carrier for supporting products within the retort and movable relative to the retort, and wherein at least one of the plates of the shielding means is mounted on the carrier.

9 Apparatus as claimed in any preceding claim wherein the retort is provided with trap means at a lower part of the retort adapted to catch coolant liquid impinging on the retort wall due to failure of the shielding means, and a selectively openable drain valve in communication with the trap and openable to drain liquid from the trap.

10 Apparatus as claimed in Claim 9 wherein the trap means incorporates a sensor for detecting the presence of liquid in the trap means such as a level sensor or a sensor adapted to detect a constituent of a liquid coolant composition.

11 Shielding apparatus for a retort comprises a retort wall defining a volume into which products to be treated are receivable, heating means for heating the retort, and coolant spray means for spraying a liquid coolant onto products received in the retort, and shielding means mountable within the retort to substantially prevent liquid coolant sprayed from the coolant spray means from impinging on the interior of the retort wall.

12 Shielding apparatus as claimed in Claim 11 wherein the shielding means comprises one or more plates of solid sheet material.

13 Shielding apparatus as claimed in Claim 11 wherein the shielding means comprise foam or mesh material having a pore or mesh size effective to prevent droplets or streams of coolant from impinging on the retort wall.

14 Shielding apparatus as claimed in Claim 11 wherein the shielding means comprises an impervious layer of thermally insulating material.

15 Shielding apparatus as claimed in Claims 11 to 14 wherein the shielding means includes a sump tray mounted at a lower region of the retort and having a drain conduit extendable through the retort wall to drain liquid from the tray, and a plurality of vertically extending plates positionable with their lowermost edges above the sump tray so that liquid impinging on the plates will be collected in the sump tray.

16 A method of protecting a retort comprising a retort wall defining a volume into which products to be treated are receivable, heating means for heating the retort, and coolant spray means for spraying a liquid coolant onto products received in the retort against thermal shock, the method comprising the step of mounting shielding means within the retort to prevent liquid coolant sprayed from the coolant spray means within the retort from impinging on the interior of the retort wall.

17 A method of protecting a retort as claimed in Claim 16 including the steps of:

mounting a sump tray at a lower region of the retort;

providing a drain conduit through the retort wall to drain liquid from the tray; and

mounting a plurality of vertically extending shield plates within the retort with the lowermost edges of the plates positioned above the sump tray.

18 A method of protecting a retort as claimed in Claim 16 wherein the shielding means comprises an impervious layer of thermally insulating material; includes the steps of:

opening the drain valve to empty the trap;

closing the drain valve prior to a cooling operation; and

establishing shield failure by sensing liquid coolant in the trap after the cooling operation has started.

19 A method of protecting a retort as claimed in Claim 18 wherein the step of detecting liquid in the trap comprises either detecting a level of the liquid therein or detecting a constituent of liquid therein.

20 Apparatus for locating within a retort a plurality of substantially cylindrical objects having a pair of transverse end walls joined at their edges to a sidewall in paraxial layered relation with objects spaced by at least a minimum predetermined spacing distance from each other, comprising: a substantially planar mat having first and second faces; and a plurality of arrays of projections extending from one of said faces, each array being arranged to receive an end face of one of said objects there-between in a location position; wherein the height of the projections is so arranged that when one end face of an object contacts a free end of a projection, the other end face of the object is offset from its location position.

21 Apparatus as claimed in Claim 20 wherein the height of the projections is so arranged that when one end face of an object contacts a free end of a projection, the other end face of the object is offset from its location position by at least the minimum predetermined spacing distance.

22 Apparatus as claimed in Claim 20 or 21 wherein each array comprises three or more projections.

23 Apparatus as claimed in claims 20 – 22 wherein each projection comprises a cylindrical base section and a conical top portion.

24 Apparatus as claimed in Claim 23 wherein the diameter of the base section corresponds to said minimum predetermined spacing distance.